FINDING OF NO SIGNIFICANT IMPACT

Construction and Operation of a Septic System to Treat Sanitary Wastewater at New Boston Air Force Station, New Hampshire

The U.S. Air Force (USAF) proposes to construct and operate a septic system for disposal of sanitary wastewater at New Boston Air Force Station (NBAFS), New Hampshire. The proposed action will eliminate the need for a National Pollutant Discharge Elimination System (NPDES) permit. The proposed action would occur in and adjacent to the Operations Area in the northeast portion of the station.

Potential impacts to the natural and human environment associated with construction and operation of the septic system at NBAFS are assessed in the accompanying Environmental Assessment (EA), entitled *Environmental Assessment for Construction and Operation of a Septic System at New Boston Air Force Station, New Hampshire*. The EA was prepared in accordance with specific tasks and procedures of the USAF Environmental Impact Analysis Process (EIAP; Air Force Instruction 32-7061), as it applies to the National Environmental Policy Act of 1969 (Public Law 91-190, 42 U.S.C. Sections 4321-4347). The EA evaluates the environmental consequences of the proposed action and the no-action alternative (i.e., continuing to use the existing wastewater treatment plant). The assessment evaluates the potential for impacts to air quality, noise levels, topography, geology, soils, water resources, ecological resources (including threatened and endangered species and wetlands), cultural resources, land use, recreation, visual resources, socioeconomics, and health and safety. The general public was given a 30-day period (_____ to _____) to comment on the proposed action and the EA. All comments received from the public have been addressed.

The proposed action is preferred over the no-action alternative. The no-action alternative would result in high potential for future violations of NPDES permit requirements. The proposed action would result primarily in small, localized, short-term impacts to the environment. Anticipated impacts are associated with vegetation removal, excavation, and land disturbance that would occur during construction of the septic system. Erosion-control and revegetation practices would reduce impacts by ensuring that runoff and erosion from excavation and construction areas were minimized and the site was stabilized soon after construction was complete. No adverse impacts are anticipated during operation of the septic system because the system would meet State requirements that are protective of the environment and human health. Diversion of sanitary wastewater from the existing wastewater treatment plant to the septic system would eliminate discharge of treated wastewater to Beaver Pond 1. The elimination of this discharge to surface waters would cause a small reduction in water levels and flow in Beaver Pond 1, Deer Pond, Joe English Pond, Joe English Brook, and associated wetlands. Resulting water levels and flow would be more consistent with natural conditions, and this reduction is not considered an adverse impact.

On the basis of the assessments detailed in the EA, it has been determined that the proposed action would not have a significant effect on the human environment. Therefore, an Environmental Impact Statement will not be required nor prepared for construction and operation of a septic system at NBAFS.

_____ _____

Date

Charles H. Cynamon, Lt. Col., USAF
Commander

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ENVIRONMENTAL ASSESSMENT FOR CONSTRUCTION AND OPERATION OF A SEPTIC SYSTEM AT NEW BOSTON AIR FORCE STATION, NEW HAMPSHIRE

prepared by
Environmental Assessment Division
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Argonne, Illinois

for

23 SOPS/MAFCVN
U.S. Department of the Air Force
New Boston Air Force Station
New Hampshire

April 2004

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NOTATION

The following is a list of the acronyms, initialisms, and abbreviations (including units of measure) used in this document.

ACRONYMS, INITIALISMS, AND ABBREVIATIONS

AFI	Air Force Instruction
AFSCN	Air Force Satellite Control Network
CFR	Code of Federal Regulations
DoD	Department of Defense
EA	environmental assessment
EDA	effluent disposal area
EPA	U.S. Environmental Protection Agency
HABS/HAER	Historic American Building Survey/Historic American Engineering Record
NAAQS	National Ambient Air Quality Standards
NBAFS	New Boston Air Force Station
NEPA	National Environmental Policy Act
NHDES	New Hampshire Department of Environmental Services
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
PA	Programmatic Agreement
PM_{10}	particulate matter, less than or equal to 10 μm in size
$PM_{2.5}$	particulate matter, less than or equal to 2.5 μm in size
SATCOM	Satellite Communications Network
SHPO	State Historic Preservation Officer
SOPS	Space Operations Squadron
USAF	U.S. Air Force
UXO	Unexploded Ordnance
WET	Whole Effluent Toxicity

UNITS OF MEASURE

ac	acres(s)
cm	centimeter(s)
dB	decibel(s)
dBA	unit of weighted sound-pressure level
ft	foot (feet)
gal	gallon
ha	hectare(s)
in.	inch(es)
km	kilometer(s)
L_{dn}	day-night weighted equivalent sound level
L_{eq}	equivalent steady sound level
m	meter(s)
mi	mile(s)
μm	micrometer(s)
ton	ton
yd	yard(s)

ENVIRONMENTAL ASSESSMENT FOR CONSTRUCTION AND OPERATION OF A SEPTIC SYSTEM AT NEW BOSTON AIR FORCE STATION, NEW HAMPSHIRE

Prepared by

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ABSTRACT

The U.S. Air Force (USAF) proposes to construct and operate a septic system to treat sanitary wastewater at New Boston Air Force Station (NBAFS), New Hampshire. The proposed action would eliminate the need for a National Pollutant Discharge Elimination System (NPDES) permit. The proposed action would occur in and adjacent to the Operations Area in the northeast portion of the station. This environmental assessment evaluates the potential impacts of the proposed action and no-action alternative on air quality, noise, topography, geology, soils, water resources, ecological resources, cultural resources, land use, recreation, visual resources, socioeconomics, and health and safety. The proposed action would result primarily in small, localized, short-term impacts to the environment. Anticipated impacts are associated with vegetation removal, excavation, and land disturbance that would occur during construction of the septic system. Erosion-control and revegetation practices would reduce impacts by ensuring that runoff and erosion from construction areas were minimized and the site was stabilized soon after construction was complete. No adverse impacts are anticipated during operation of the septic system because the system would meet State requirements that are protective of the environment and human health. Diversion of sanitary wastewater from the existing wastewater treatment plant to the septic system would eliminate discharge of treated wastewater to Beaver Pond 1. The elimination of this discharge to surface waters would cause a small reduction in water levels and flow in Beaver Pond 1, Deer Pond, Joe English Pond, Joe English Brook, and associated wetlands. Resulting water levels and flow would be more consistent with natural conditions, and this reduction is not considered an adverse impact. Environmental impacts associated with the no-action alternative include continued exceedances of the wastewater discharge permit and associated potential adverse impacts to wetland biota.

1 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The proposed action evaluated in this environmental assessment (EA) is the construction and operation of a septic system at New Boston Air Force Station (NBAFS), New Hampshire for disposal of sanitary wastewater. The design of the septic system was developed by Parsons, Brinckerhoff, Quade, and Douglas, Inc. in consultation with the New Hampshire Department of Environmental Services (NHDES) (PBQD 2003). Currently, NBAFS operates a wastewater treatment plant that utilizes an extended aeration wastewater treatment unit with a biological treatment process that uses activated sludge. The treated water from the wastewater treatment plant is discharged into a large wetland located on the station (Beaver Pond 1). Discharge of this effluent requires a permit under the National Pollutant Discharge Elimination System (NPDES) administered by the U.S. Environmental Protection Agency (EPA). The water effluent is tested quarterly using the Whole Effluent Toxicity (WET) test as a condition of the permit. This test evaluates the effects of the treated wastewater on certain representative sensitive aquatic species. The effluent from the NBAFS wastewater treatment plant frequently exceeds the regulatory requirements of the permit. The exact cause for the violation is unknown, but there is indication that WET test failures may be caused by sodium bisulfite (used as a dechlorination chemical), low dissolved oxygen, elevated levels of ammonia, or elevated levels of heavy metals (Ecology and Environment, Inc. 2003). In 2003, an ultraviolet disinfection system was added to the wastewater plant eliminating the use of chlorine and sodium bisulfite in the wastewater treatment process; subsequently four of six WET test were compliant with permit standards. The conversion of the current wastewater treatment system to a septic system would remove the need to discharge treated effluent into surface waters, and therefore would bring NBAFS back into compliance by eliminating NPDES requirements. This EA evaluates the impacts associated with construction and operation of the septic system and was prepared in accordance with specific tasks and procedures of Air Force Instruction (AFI) 32-7061: *The Environmental Impact Analysis Process* as it applies to the National Environmental Policy Act (NEPA) of 1969, Title 40, Parts 1500–1508 of the *Code of Federal Regulations* (40 CFR Parts 1500–1508), as amended.

2 DESCRIPTION OF THE PROPOSED ACTION AND THE ALTERNATIVE

2.1 PROPOSED ACTION

The proposed action is to construct and operate a septic system for disposal of sanitary wastewater. This system would replace the existing wastewater treatment plant and would allow NBAFS to process its wastewater without adversely affecting the environment. The effluent from the existing wastewater treatment plant occasionally exceeds the limits of the NPDES permit for the site. The proposed septic system will meet the specifications established by NHDES that are considered protective of the environment and human health. The laboratory in the existing wastewater treatment plant would continue to be used for analysis of drinking water and the building would be maintained.

The proposed septic system would use two approximately 5,000 gal (18.9 m^3) septic tanks that provide the needed capacity and the ability to make necessary maintenance repairs without interrupting service. Sanitary wastewater from the septic tanks would flow by gravity to two effluent disposal areas (EDAs) where the effluent would leach into the surrounding soils. On the basis of underlying soils and bedrock in the proposed EDA locations, EDAs would be designed as a mounded or raised bed system placed on the surface of existing soils. The new system would be capable of processing up to 9,800 gal/day (37.1 m^3/day) and would require a minimum total EDA area of 16,333 ft^2 (0.4 ac; 1,517 m^2). Total capacity of the septic system includes an allowance for inflow and infiltration from the sanitary sewer system as required by NHDES regulations.

The existing wastewater treatment plant, constructed in 1995, processes both sanitary wastewater and light industrial wastewater from an oil/water separator. Septic systems are only designed to process sanitary wastewater. Under the proposed action, wastewater from the oil/water separator would be sent to an evaporative system at Building 133; all former connections to the sanitary system would be removed.

The proposed action would occur in and adjacent to the Operations Area in the northeast portion of the station (Figure 1). The project area extends from the current wastewater treatment plant (Building 130) southwest along On Orbit Drive to an area between Deer Pond and Buildings 142 and 143 (Figure 2).

Prior to constructing the EDAs, two rubble piles in the project area would be removed. These rubble piles measure approximately 30 ft × 60 ft (9 m × 18 m) and 80 ft × 80 ft (24 m × 24 m), respectively, and contain soil, boulders, concrete, and metal reinforcing mesh. It is estimated that 1,900 yd^3 of material must be removed by the contractor prior to construction of the new system. The material would be removed by the contractor and disposed of at a permitted site off station grounds.

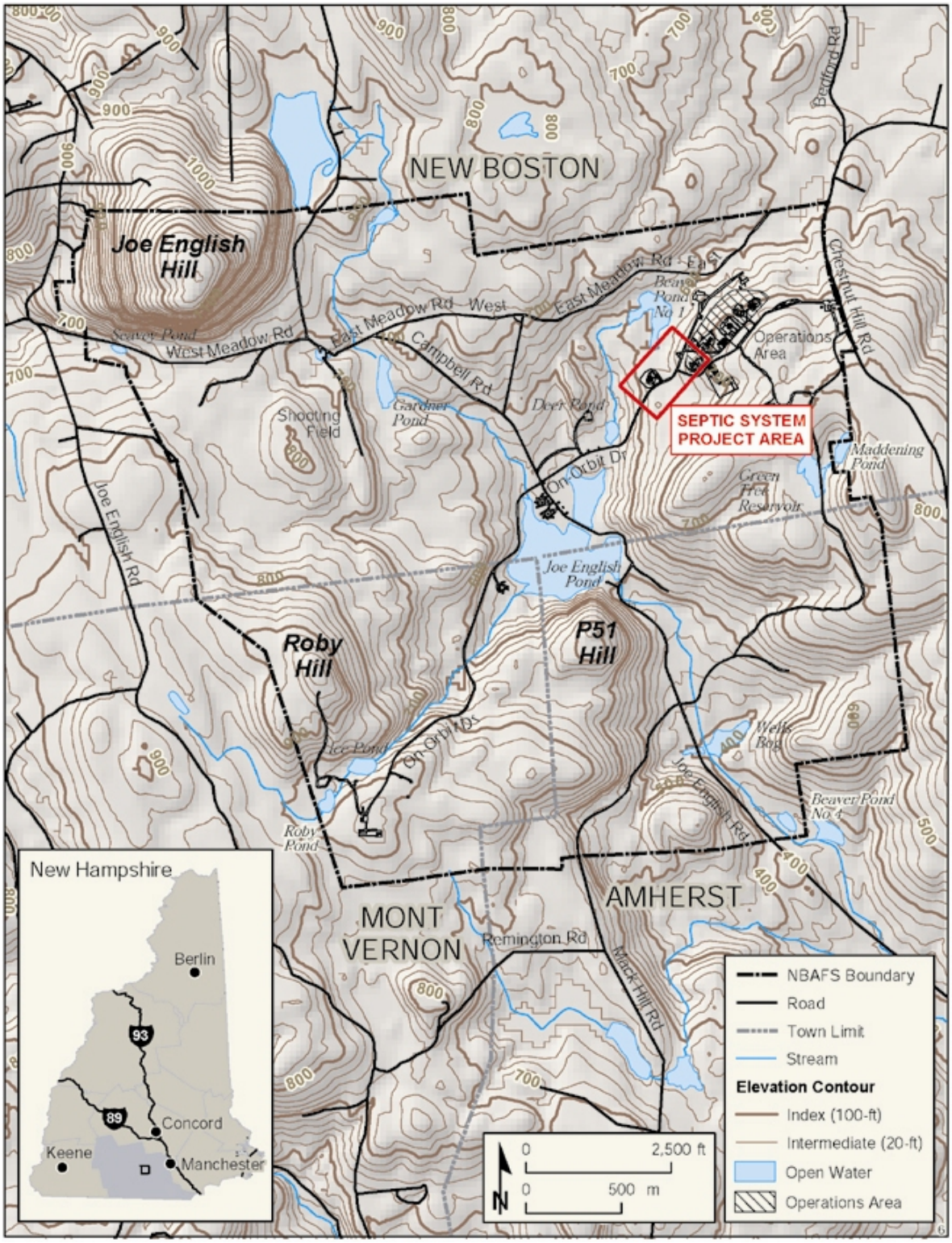

Figure 1. Location of the Proposed Septic System at New Boston Air Force Station, New Hampshire.

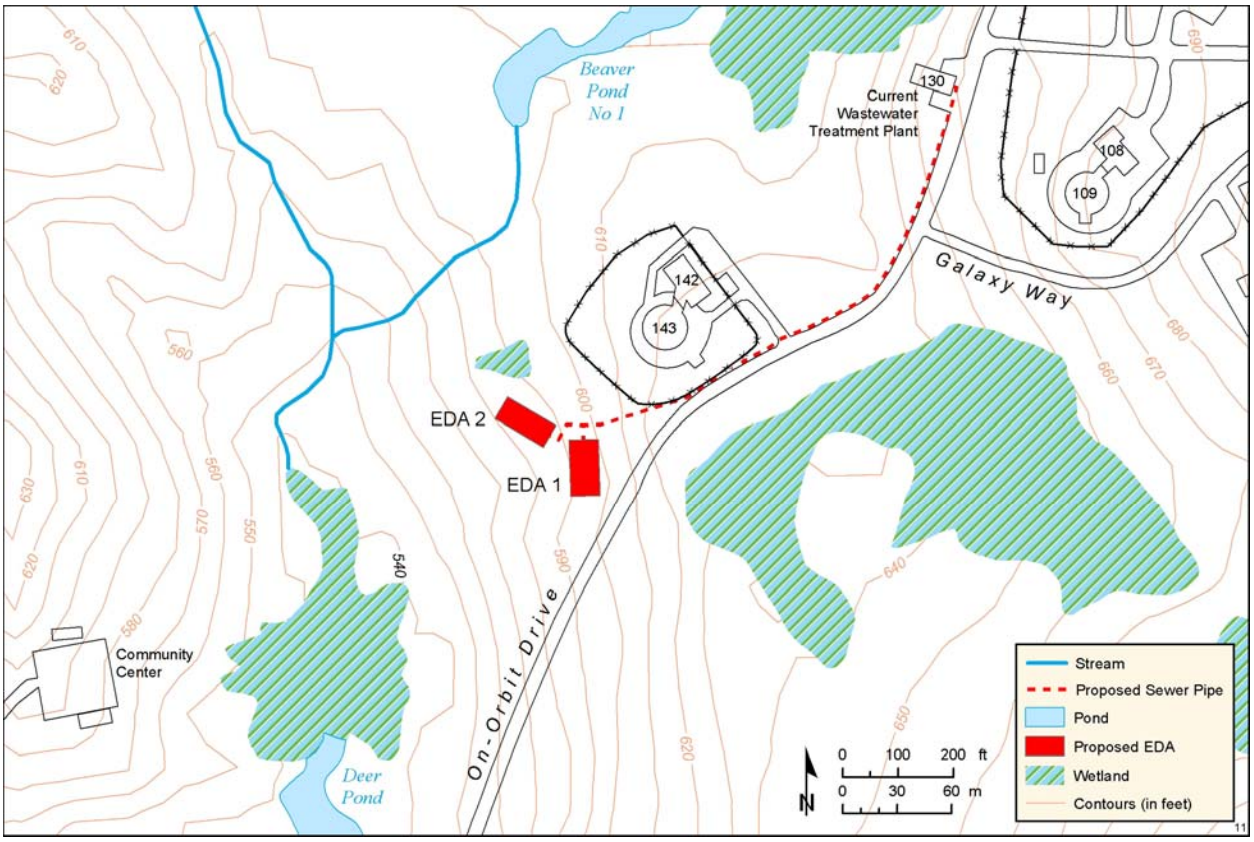

Figure 2. Detail of the Proposed Septic System Project Area at New Boston Air Force Station, New Hampshire.

The septic system would connect to the current sanitary wastewater system at the manhole located to the southeast of the current wastewater treatment plant. The existing 8-in. (20-cm) diameter sewer pipe that leads to the wastewater treatment plant would be plugged and a new 8-in. (20-cm) diameter concrete sewage pipe would be installed to transport the wastewater to the septic tanks. The wastewater treatment plant laboratory sink and restroom would be tied into the sanitary sewer system. The trench for the new sewer pipe would be mechanically excavated. The trench would be 50-in. (127 cm) wide at minimum and between 5 and 6 ft deep (about 1.5 m). The base of the trench below the new sewer pipe would consist of one-ft deep (30.5 cm) layer of 0.5 in. (1.3 cm) gravel or crushed concrete. The new sewer line would be installed north of On-Orbit Drive.

The two septic tanks would be placed approximately 700 ft (213 m) from the manhole in front of Building 130. Each tank would be constructed of 6-in.- (15-cm-) thick precast or poured concrete and measure 10 ft × 17 ft × 7 ft 8 inches tall (3 m × 5 m × 2.5 m). Three 24-in. (61-cm) diameter access points would be placed on top of each tank for inspection and cleaning. After exiting the septic tanks, the effluent would travel another 250 ft (76 m) to the EDAs.

Each EDA would use the Enviro-Septic leaching system. This system uses a series of specially designed 1-ft (30.5 cm) diameter pipes formed of multiple layers of corrugated plastic, coarse plastic fiber, and geo-textile fabric. The Enviro-Septic pipes are placed across the slope and are connected by 4-in. (10-cm) diameter polyvinyl chloride pipe running down slope. The effluent from the septic tanks flows by gravity into the Enviro-Septic pipes where it leaches into the EDA. Wastewater would dissipate through the EDA into the surrounding soil.

The base of each EDA would be a minimum of 2 ft (0.6 m) above the observed seasonal high water table. The base of the EDA would consist of approved fill material. In the center of the EDA are the Enviro-Septic pipes placed with 6 in. (15 cm) of washed sand above and below the pipes. Above this material is a layer of fill soil. The up slope and down slope portions of the EDA mounds would consist of approved gravel covered with 4 in. (10 cm) of topsoil seeded with lawn grass. The grade of each mounded EDA would be 3 to 1. The current design requires 26 Enviro-Septic pipes in EDA 1 and 27 pipes in EDA 2.

Prior to beginning operation of the new system, the existing wastewater treatment plant and the oil/water separator would be disconnected from the sanitary sewer system. Under the proposed action, treated wastewater would no longer be discharged to Beaver Pond 1.

2.2 ACTIONS CONSIDERED BUT ELIMINATED FROM ANALYSIS

NBAFS Civil Engineering considered several alternatives to onsite sewage treatment including trucking sewage off site from a holding tank, running sewage lines to the nearest municipal treatment plant and modifying the existing plant to discharge to ground water. All of the alternatives explored were not economically feasible given current technology.

2.3 NO ACTION

No action is the only alternative considered in this EA. Under this alternative, the station would continue to operate the existing wastewater treatment plant to treat sanitary and light industrial wastewater.

2.4 COMPARISON OF ALTERNATIVES

A summary comparison of the expected environmental impacts of the proposed action and no-action alternative is presented in Table 1. Additional discussion of these environmental impacts is provided in Section 4.

The proposed action would result primarily in small, localized, short-term impacts to the environment associated with excavation and construction activities. No adverse impacts are anticipated during operation of the septic system because the system would meet State requirements that are protective of the environment and human health. Diversion of sanitary

Table 1. Comparison of Impacts Associated with Construction and Operation of a Septic System (Proposed Action) and the No-Action Alternative

Environmental Parameter	Proposed Action	No Action
Air Quality and Noise	Minor dust and engine emissions during construction and demolition. No violations are expected of federal and State ambient air quality standards for criteria pollutants.	No change in existing emissions.
	Short-term noise associated with equipment operation during excavation and construction.	No change in existing noise levels.
Topography, Geology, and Soils	Localized minor soil erosion and compaction during excavation and construction. Creation of aboveground, mounded EDAs and removal of existing rubble piles would change topography of project area, but grading would create stable slopes.	No impact to topography, geology, and soils.
Water Resources	Potential for localized minor increases in turbidity and sedimentation in nearby surface waters during excavation and construction due to erosion of construction sites.	No sedimentation of surface waters expected.
	Operation of septic system would eliminate discharge (average 1,810 gal/day [6.9 m^3/day]) of treated wastewater effluent from existing wastewater treatment plant to Beaver Pond 1 and subsequent reduction in flow to Deer Pond, Joe English Pond, Joe English Brook, and associated wetlands. Elimination of discharge would return wetlands, ponds, and streams to more natural conditions.	Continued discharge of treated wastewater to Beaver Pond 1 and possible impacts to water quality. Discharges result in slightly increased water levels and flow in Beaver Pond 1, Deer Pond, Joe English Pond, Joe English Brook, and associated wetlands.
Ecological Resources	Up to 2 ac (0.9 ha) of young deciduous woodland cleared for EDAs.	No impacts to vegetation.
	Localized minor noise and visual disturbance to wildlife during demolition and construction.	No impacts to wildlife.
	Reduction in water levels and flow in Beaver Pond 1, Deer Pond, Joe English Pond, Joe English Brook, and associated wetlands resulting from elimination of treated wastewater discharge from existing wastewater treatment plant. Reduction in discharges is expected to result in minor changes in water levels and flow and a return to more natural conditions.	Continued discharge of treated wastewater to Beaver Pond 1 and possible impacts to aquatic biota. Discharges result in slightly increased water levels and flow in Beaver Pond 1, Deer Pond, Joe English Pond, Joe English Brook, and associated wetlands.
	No impacts expected to listed or rare species.	No impacts expected to listed or rare species.
Cultural Resources	No impact expected to archaeological or historical resources.	No impact to archaeological or historical resources.
Land Use, Recreation, and Visual Resources	No impacts to land use or recreation.	No impacts to land use or recreation.

Table 1 (Cont.)

Environmental Parameter	Proposed Action	No Action
Land Use, Recreation, and Visual Resources (Cont.)	Minor impact to visual resources resulting from clearing of young woodland and construction of aboveground, mounded EDAs.	No impacts to visual resources.
Socioeconomics	Negligible, short-term benefits to the local economy during excavation and construction.	No impacts to socioeconomics.
	No environmental justice impact.	No environmental justice impact.
Health and Safety	No health and safety impacts.	No health and safety impacts.

wastewater from the existing wastewater treatment plant to the septic system would eliminate discharge of treated wastewater to Beaver Pond 1. The elimination of this discharge would cause a small reduction in water levels and flow in Beaver Pond 1, Deer Pond, Joe English Pond, Joe English Brook, and associated wetlands. Resulting water levels and flow would be more consistent with natural conditions, and this reduction is not considered an adverse impact. Environmental impacts associated with the no-action alternative include possible future exceedances of the wastewater discharge permit, possible related EPA fines, and associated potential adverse impacts to wetland biota.

3 AFFECTED ENVIRONMENT

This section presents a general description of NBAFS and the resources that could be affected by the proposed action and the no-action alternative. The project area is located in and adjacent to the Operations Area in the northeastern portion of the station.

3.1 LOCATION, HISTORY, AND CURRENT MISSION

NBAFS is located in south-central New Hampshire about 12 mi (19 km) west of Manchester. The 2,826-ac (1,144-ha) site is located within the towns of New Boston, Amherst, and Mont Vernon, in Hillsborough County. On-Orbit Drive bisects the station from the southwest corner of the station to the 44-ac (17.7-ha) Operations Area in the northeastern portion of the station (Figure 1).

As part of the worldwide network of satellite command and control stations of the Air Force Satellite Control Network (AFSCN), the current mission of NBAFS is to serve as a remote tracking station for military and communications satellites. The 23rd Space Operations Squadron (SOPS) at NBAFS provides launch, operation, and on-orbit support for more than 140 military satellites, communication satellites, and North Atlantic Treaty Organization and other allied nation satellites and for National Aeronautics and Space Administration Space Shuttle missions (Najjar 1998).

From 1941 until 1956, NBAFS (then known as the New Boston Bombing and Gunnery Range) was used as an air-to-ground bombing and strafing range. The USAF acquired rights to the site in 1957 for use as a satellite-tracking station. In 1959, the 6594th Instrumentation Squadron was activated at NBAFS. Squadron activities began in 1960; mobile radar units were used until permanent facilities were constructed and in operation by 1964. In the early 1960s, the Operations Area was cleared of UXO before the permanent facilities for the satellite-tracking mission were constructed. The site was formerly under the jurisdiction of the USAF Systems Command, which transferred the mission to the USAF Space Command in 1987 (Najjar 1998). The satellite-tracking mission is conducted from the Operations Area; the remainder of NBAFS is managed for military training, recreation, natural resources conservation, and cultural resources protection (LaGory et al. 1997).

3.2 CLIMATE, AIR QUALITY, AND NOISE

The region around NBAFS is characterized by a humid continental climate. Precipitation is evenly distributed throughout the year, with no particular wet or dry season. Coastal storms can be a serious weather hazard in southeastern New Hampshire, but decrease in importance northward (Ruffner 1985). Such storms generate very strong winds and heavy rain or snow. Storms of tropical origin affect or threaten New Hampshire about once every two to three years. Thunderstorms occur 15 to 30 times per year. Ice storms occur in the winter, but are usually of short duration. However, a few widespread and prolonged ice storms have occurred. Data for the

3,530-mi^2 (9,130-km^2) area that includes NBAFS indicate that fewer than two tornadoes occur per year. The localized area affected by a tornado averages only 0.11 mi^2 (0.29 km^2; Ramsdell and Andrews 1986).

The State of New Hampshire Ambient Air Quality Standards are identical to the National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants: sulfur oxides (as sulfur dioxide; particulate matter with an aerodynamic diameter less than or equal to 10 μm and 2.5 μm (PM_{10} and $PM_{2.5}$, respectively); carbon monoxide; ozone; nitrogen dioxide; and lead (Sanborn 1998). In 1996, New Hampshire discontinued lead monitoring because lead concentrations were well below the NAAQS and at the lowest levels of the detection limit. As of November 4, 2002, Hillsborough County (which includes NBAFS) was designated as an attainment area for all criteria pollutants except ozone.

Permitted air pollution sources at NBAFS include two large diesel-fuel backup generators at the station's power plant (Najjar 1998). These boilers and other combustion sources are included in annual air emissions inventories. Other combustion sources at NBAFS include 17 fuel-oil generators and heaters; propane space heaters, including four propane heaters for antenna deicing; and a cooling tower. In addition, NBAFS has three diesel, one gasoline, and 13 fuel-oil storage tanks. Fugitive emissions of volatile organic compounds, hazardous air pollutants from chemical use, and ozone-depleting substances are extremely low (Najjar 1998).

Currently, no quantitative noise-limit regulations exist in New Hampshire (ANL 1999). EPA guidelines recommend an L_{dn} (the day-night weighted equivalent sound level) of 55 dBA,[1] which is considered sufficient to protect the public from the effect of broadband environmental noise in typically quiet outdoor and residential areas (EPA 1974). For protection against hearing loss in the general population from nonimpulsive noise, the EPA guidelines recommend an L_{eq} of 70 dBA or less per day over a 40-year period.[2]

No noise monitoring data are available from the area around the NBAFS site. However, the acoustic environment around the NBAFS site can be considered that of a rural location, with typical residual sound levels of approximately 30 to 35 dBA (Liebich and Cristoforo 1988). The closest off-site residences in the project area occur immediately adjacent to the station boundary along Chestnut Hill Road. Ambient noise levels at these residences would be substantially increased at times when traffic passes by.

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1 dBA is a unit of weighted sound-pressure level, measured by the use of the metering characteristics and the "A" weighting specified in the *American Standard Specification for Sound Level Meters ANSI SI.4-1983* and Amendment S1.4A-1985 (Acoustical Society of America 1983, 1985).

2 L_{eq} is the equivalent steady sound level that, if continuous during a specific time period, would contain the same total energy as the actual time-varying sound. For example, L_{eq}(1-h) is the 1-hour equivalent sound level.

3.3 TOPOGRAPHY, GEOLOGY, AND SOILS

NBAFS is located within an area of hilly and mountainous terrain. The main physiographic features on NBAFS are Chestnut Hill in the northeastern section, Roby Hill in the southwestern section, and Joe English Hill in the northwestern section. Within the center of the station is Joe English Pond (Figure 1). The Operations Area, where the proposed action would occur, is located on the northwest-facing slope of Chestnut Hill, at an elevation of about 700 ft (213 m) mean sea level (PES 1995).

The bedrock geology underlying NBAFS consists of Pre-Quaternary metamorphic and igneous rocks. Generally, the bedrock is buried beneath glacial drift. Till is the dominant surficial deposit and is composed of an unsorted to poorly sorted mixture of clay, silt, sand, pebble, cobbles, gravel, and boulders. However, swamp deposits and recent alluvium are also present. Glacial striations and drumlins (elongate or oval hills) are present throughout the area and provide evidence of the general north to south glacial movement. Chestnut Hill, a drumlin, is one such glacial feature (PES 1995).

Over 90% of the soils on NBAFS were formed in glacial till; other soils were formed in outwash plains, kames, or stream valleys. Soils formed in glacial till tend to be fine-textured and dense and contain many stones. Soils covering about one-half of NBAFS are classified as stony or very stony. The soils at NBAFS tend to be highly resistant to erosion if stabilized by vegetative cover. The soils, however, have moderate to extreme erosion potential in bare areas because of their fine texture and the steep slopes present in portions of NBAFS. Activities that disturb or remove vegetation are likely to increase the erosion hazard, particularly on slopes (ENSR 1993).

Much of the Operations Area occurs on fill that was placed during the original development of the area. Natural soils occur where the proposed EDAs would be constructed and include Paxton stony fine sandy loam (15 to 25% slopes and 3 to 8 % slopes) Woodbridge stony loam (8 to 15% slopes), and Canton stony fine sandy loam (8 to 15% slope) (Bond and Handler 1981). None of these soils meets the requirements for prime farmland. Depths to bedrock are more than 5 ft (1.5 m) for Paxton and Woodbridge soils, and over 60 in. (152 cm) for the Canton soils. The Paxton and Canton soils have a dense hardpan or fragipan in their substratum. The seasonal high-water table forms on the surface of this layer. Test pits dug for this project encountered bedrock at between 2.3 ft to 8 ft (0.7 m to 2.4m) below ground surface (PBQD 2003). Soil conditions were determined to be unsuitable for construction of underground EDAs, and prompted selection of an aboveground mounded EDA design (PBQD 2003).

3.4 WATER RESOURCES

Most of NBAFS is located within the Joe English Brook watershed. The station contains a number of open waters and stream segments (intermittent and perennial) (Figure 1). The approximate maximum areas of the site's larger open waters (including associated wetlands) are Seavy Pond, 0.5 ac (0.2 ha); Joe English Pond, 50 ac (20 ha); Gardner Pond, 6.0 ac (2.4 ha); Green Tree Reservoir, 7.5 ac (3.0 ha); Ice Pond, 2.8 ac (1.1 ha); and Roby Pond, 0.75 ac (0.3 ha)

(Najjar 1998). The ponds range between 1 and 28 ft (0.3 and 8.5 m) in depth. Seavy Pond is the only completely man-made impoundment on the site. The other ponds listed above have had dams constructed at their outlets to improve wildlife habitats (PES 1996).

The stream segments on NBAFS include those that flow into Joe English Pond from the upland wetland areas of Murphy Swamp, Gardner Pond, Beaver Pond 1, Deer Pond, and Ice Pond. Drainage from the Operations Area is generally to the northwest toward Beaver Pond 1 (ANL 1999). Drainage from Joe English Pond flows southeast along Joe English Brook, which exits the installation boundary about 1 mi (1.6 km) downstream. Joe English Brook is the largest on-site stream. It ranges from 10 to 20 ft (3 to 6 m) wide and between 2 and 5 ft (0.6 and 1.5 m) deep (PES 1995). Both Joe English Pond and Joe English Brook are designated as Class B waters and are considered suitable for swimming and other recreation, fish habitat, and, after adequate treatment, use as a water supply (PES 1995).

The major aquifer system at NBAFS is in the bedrock. Fractured metasedimentary rocks that have adequate effective porosity, permeability, and thickness to provide a high degree of groundwater transmissivity in the aquifer system are typical. Groundwater levels at NBAFS range from 73 ft (22 m) below land surface to flowing artesian conditions near Joe English Pond. Four wells have been drilled into the groundwater system on NBAFS to obtain potable water (only three are currently used). Four other wells have been drilled for nonpotable grounding wells used for the satellite tracking facilities (ANL 2000).

The only permitted water pollution point source is the station wastewater treatment plant Discharge from the wastewater treatment plant eventually drains into Joe English Pond (Najjar 1998). Industrial and sanitary wastewater from the Operations Area is collected by a sewer system and routed to the station's wastewater treatment plant. The plant provides primary treatment and extended aeration treatment and disinfection.

The existing wastewater treatment plant discharges treated water to Beaver Pond 1 wetlands located to the north of the treatment plant. Beaver Pond 1 drains to Deer Pond via a small stream and ultimately to Joe English Pond and Joe English Brook before flowing offsite. The average daily volume discharged from March 2002 to March 2003 was 1,810 gal (6.9 m^3), but monthly peak volume varied from 2,270 gal to 9,000 gal (8.6 m^3 to 34.1 m^3) (PBQD 2003). Some peak flow events occurred after precipitation events indicating that the increase in flow was due to inflow and infiltration rather than wastewater production.

3.5 ECOLOGICAL RESOURCES

NBAFS has been identified as a Category I installation by both the New Hampshire Department of Fish and Game and the U.S. Fish and Wildlife Service. This classification indicates that NBAFS has habitat suitable for conserving and managing fish and wildlife. An Integrated Natural Resource Management Plan is used to guide management of the natural resources of NBAFS using an ecosystem approach (Najjar 1998). The relatively high biodiversity supported on NBAFS is attributable to the presence of generally undisturbed lands on much of the site and to the types of low-impact activities that occur on the station (LaGory et

al. 1997). Three surveys have been conducted to determine the habitats and biotic composition of NBAFS — wetland delineations (PES 1996), a biodiversity survey (LaGory et al. 1997), and a bat survey (LaGory et al. 2002).

Much of the area surrounding NBAFS is rural with interspersed forests and residential areas. Land cover on the station is consistent with the surrounding area, and much of the habitat present on the station is represented elsewhere in the county and region. However, residential development of surrounding lands has increased within the past decade, resulting in an increase in the ecological importance of the undeveloped land on the station grounds.

Over 450 species of plants have been identified on NBAFS (LaGory et al. 1997). About 98% of NBAFS is covered with native vegetation, and the majority of the site is forested. Dominant forest trees include red oak (*Quercus rubra*), eastern white pine (*Pinus strobus*), eastern hemlock (*Tsuga canadensis*), red maple (*Acer rubrum*), black birch (*Betula lenta*), and American beech (*Fagus grandifolia*).

Wildlife species on the station are typical for the region. A total of 147 species of birds have been observed on NBAFS, with 109 of these species being neotropical migrants. The most common species on the station included Canada goose (*Branta canadensis*), broad-winged hawk (*Buteo platypterus*), tree swallow (*Tachycineta bicolor*), black-capped chickadee (*Poecile atricapillus*), blue jay (*Cyanocitta cristata*), American crow (*Corvus brachyrhynchos*), American robin (*Turdus migratorius*), cedar waxwing (*Bombycilla cedorum*), dark-eyed junco (*Junco hyemalis*), and common grackle (*Quiscalus quiscula*). At least 58 species breed on NBAFS, and 42 of these are neotropical migrants. The largest numbers of bird species have been observed in wetlands, parkland, mature mixed forest, and mature deciduous forest; more than 80 species have been observed in each of these habitats. The fewest species were observed in developed, disturbed, and young coniferous forest; fewer than 50 species have been observed in each of these habitats (LaGory et al. 1997).

Twenty mammal species have been observed on NBAFS. The eastern chipmunk (*Tamias striatus*), red squirrel (*Tamiasciurus hudsonicus*), coyote (*Canis latrans*), and white-tailed deer (*Odocoileus virginianus*) are abundant, while the woodchuck (*Marmota monax*), red-backed vole (*Clethrionymys gapperi*), porcupine (*Erethizon dorsatum*), red fox (*Vulpes fulva*), and fisher (*Martes pennanti*) are common. Among the 18 species of reptiles and amphibians observed on NBAFS, the most abundant species include red-spotted newt (*Notophthalmus viridescens*), spring peeper (*Pseudacris crucifer*), wood frog (*Rana sylvatica*), pickerel frog (*Rana palustris*), painted turtle (*Chrysemys picta*), and garter snake (*Thamnophis sirtalis*) (LaGory et al. 1997).

Most of the developed land at NBAFS (buildings, roads, and parking lots interspersed with mowed lawns and landscaped plantings) is limited to the Operations Area. The herbaceous cover in these areas is either cultivated lawn grass in level areas or a variety of planted grasses and forbs on slopes (Najjar 1998). In addition to grass, the Operations Area includes landscape plantings of native tree and shrub species (e.g., white pine, maples, dogwood, and junipers; Najjar 1998). The landscaped lawns in the Operations Area provide low-value habitat for wildlife. Deciduous and mixed forests are the primary undeveloped habitats adjacent to the Operations Area.

The project area consists of a portion of the Operations Area between the wastewater treatment plant (Building 130) and the SATCOM Antenna (Buildings 142 and 143) and an adjacent portion to the southwest of these buildings where the EDAs would be located. That portion of the project area within the Operations Area is located along On-Orbit Drive in an area currently maintained as mowed grass. The EDAs would be located in an area of young deciduous woodland that supports red oak, American beech, and birch (*Betula* spp.). This area was apparently disturbed during construction of Buildings 142 and 143 as evidenced by the two piles of construction debris in the area.

Wildlife species near the project area are typical for the station and region. Commonly encountered species include red-spotted newt, American toad (*Bufo americanus*), spring peeper, wood frog, northern leopard frog (*Rana pipiens*), pickerel frog, painted turtle, garter snake, mourning dove (*Zenaida macroura*), blue jay, black-capped chickadee (*Poecile atricapillus*), American robin, eastern towhee (*Pipilo erythrophthalmus*), dark-eyed junco, house finch (*Carpodacus mexicanus*), raccoon (*Procyon lotor*), coyote, eastern chipmunk, woodchuck, red squirrel, red-backed vole, and white-tailed deer (LaGory et al. 1997).

In the northeastern portion of NBAFS in which the project would be located there are 57 wetland areas that total nearly 23 ha (57 acres), ranging in size from 0.03 to 10.4 acres (0.01 to 4.2 ha; PES 1996). Wetlands in the vicinity of the proposed project area are shown in Figure 3 and their characteristics are presented in Table 2. As stated in Section 3.4, treated wastewater from the existing treatment plant is discharged into the Beaver Pond 1 wetland complex. This complex contains a variety of wetland types including forested, scrub-shrub, and emergent wetlands, and areas of open water (Beaver Pond 1 and Deer Pond); beavers control water levels in several of the wetlands (wetlands 19, 20, 23, 24, 25, and 26; Table 2).

Wetlands that are downstream of the treated wastewater discharge point, and therefore receive treated wastewater are wetlands 29, 28, 25, 26, 27, 21, 20, 19A, and 19 (Figure 3). These wetlands have a total surface area of 18.9 ac (7.6 ha). Wetland 40, a 0.1 ac (0.04 ha) forested wetland is located approximately 50 ft (15 m) north of the proposed location of EDA2 (Figures 2 and 3).

The threatened, endangered, and rare species and rare natural communities that are known to occur on NBAFS are listed in Table 3. No federally listed plant species, or plant species proposed for listing, have been observed at NBAFS. Six populations of the State-listed endangered fern-leaved false foxglove have been identified at the station. All but one population occur on Joe English Hill (ANL 1999). The other population occurs at the brow of a wooded cliff southwest of Wells Bog in the south-central portion of NBAFS. This species is not known to occur in the project area.

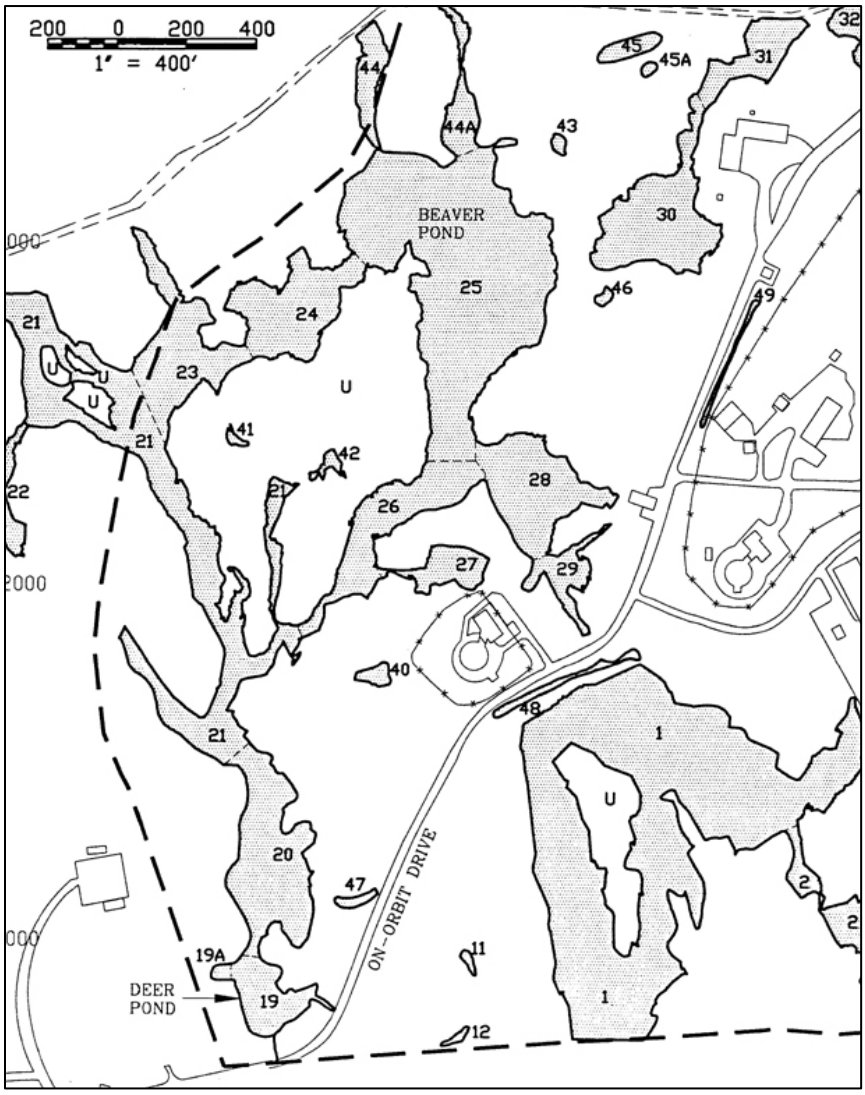

Figure 3. Wetlands Located Near the Proposed Septic System at New Boston Air Force Station, New Hampshire (Source: PES 1996).

Several State-listed birds (bald eagle, pied-billed grebe, osprey, northern harrier, and Cooper's hawk), a State-listed snake (eastern hognose snake), and a State-listed bat (small-footed bat) have been observed on NBAFS (Table 3). The bald eagle is the only federally listed species known to occur on the station. In addition, several animal species that are listed by the New Hampshire Natural Heritage Inventory as rare have been observed. These include several moths and butterflies, northern leopard frog, Blanding's turtle, American bittern, and eastern pipistrelle (Table 3; LaGory et al. 1997, 2002; Najjar 2000, 2003). Only the Blanding's turtle, whip-poor-will, and eastern pipistrelle are known to occur in the northeastern portion of the station where the proposed septic system would be located. Blanding's turtles are typically found in wetland habitats (DeGraaf and Rudis 1986) and have been found regularly in the northeastern portion of

Table 2. Characteristics of Wetlands Located in the Vicinity of the Proposed Septic System at New Boston Air Force Station, New Hampshire.

Wetland Number[1]	Wetland Habitat Type[2]	Area	
		Acres	Hectares
1	Palustrine broad-leaved deciduous forest/palustrine needle-leaved evergreen forest, seasonally flooded or saturated	10.4	4.21
2	Palustrine broad-leaved deciduous forest, seasonally flooded	1.0	0.40
12	Palustrine broad-leaved deciduous forest	0.04	0.02
19	Palustrine unconsolidated bottom, permanently flooded (beaver)	0.8	0.32
19A	Palustrine emergent marsh	0.05	0.02
20	Palustrine emergent marsh, semi-permanently flooded (beaver)	2.1	0.85
21	Palustrine broad-leaved deciduous forest, permanently flooded	4.8	1.94
22	Palustrine broad-leaved deciduous forest, seasonally flooded or saturated	0.4	0.16
23	Palustrine unconsolidated bottom, semi-permanently flooded (beaver)	1.7	0.69
24	Palustrine emergent marsh/palustrine unconsolidated bottom, semi-permanently flooded (beaver)	1.6	0.65
25	Palustrine unconsolidated bottom, semi-permanently flooded (beaver)	6.9	2.79
26	Palustrine emergent marsh, semi-permanently flooded (beaver)	1.6	0.65
27	Palustrine broad-leaved deciduous forest	0.4	0.16
28	Palustrine broad-leaved deciduous forest, seasonally flooded or saturated/palustrine emergent scrub-scrub, seasonally flooded or saturated/palustrine emergent marsh	1.7	0.69
29	Palustrine broad-leaved deciduous forest, permanently flooded/palustrine emergent marsh	0.5	0.20
30	Palustrine emergent scrub-scrub, seasonally flooded or saturated/palustrine broad-leaved deciduous forest, seasonally flooded or saturated	1.9	0.77
31	Palustrine broad-leaved deciduous forest	0.7	0.28
32	Palustrine needle-leaved evergreen forest	0.5	0.20
40	Palustrine broad-leaved deciduous forest	0.1	0.04
41	Palustrine broad-leaved deciduous forest	0.04	0.02
42	Palustrine broad-leaved deciduous forest	0.07	0.03
43	Palustrine broad-leaved deciduous forest	0.05	0.02
44	Palustrine broad-leaved deciduous forest, seasonally flooded	0.5	0.20
44A	Palustrine broad-leaved deciduous forest, seasonally flooded	0.5	0.20
45	Palustrine broad-leaved deciduous forest, seasonally flooded or saturated	0.2	0.08
45A	Palustrine broad-leaved deciduous forest, seasonally flooded or saturated	0.03	0.01

Table 2 (Cont.)

Wetland Number	Wetland Habitat Type	Area	
		Acres	Hectares
46	Palustrine broad-leaved deciduous forest, seasonally flooded	0.04	0.02
48	Palustrine emergent marsh (manmade drainage ditch)	0.18	0.07
49	Palustrine emergent marsh, seasonally flooded (manmade drainage ditch)	0.1	0.04

Source: PES (1996).

[1] Wetland numbers correspond to identification numbers on Figure 3.

[2] Wetland habitat types are from Cowardin et al. (1979).

the station. The whip-poor-will prefers to nest in open, dry woodland often near openings (LaGory et al. 1997). The eastern pipistrelle roosts in deciduous forest habitat and forages in open areas (LaGory et al. 2002). Listed or rare species that are not known to occur but could occur in the project area include the northern leopard frog, eastern hognose snake, American bittern, pied-billed grebe, osprey, and Cooper's hawk. The Cooper's hawk forages and nests in woodland habitats; the other species use wetland habitats.

No critical habitat for threatened or endangered species has been designated on NBAFS. However, eight natural communities designated by the New Hampshire Natural Heritage Inventory as rare are located on NBAFS (Table 3). Four of the communities are located on or at the base of the southern side of Joe English Hill. The other four communities are wetlands. These eight communities total 21.7 ac (8.8 ha; LaGory et al. 1997). The closest rare natural community is a black gum-red maple basin swamp located about 0.8 km (0.5 mi) south of the Operations Area near Green Tree Reservoir (Figure 1).

3.6 Cultural Resources

Archaeological investigations within the Merrimack River system have documented prehistoric sites dating from the Early Archaic period (8,000 to 5,500 B.C.), with very limited evidence for sites dating from the earlier Paleo-Indian period (10,500 to 8,000 B.C.). The streams and wetlands present at NBAFS and its high natural resource potential made it a suitable location for both temporary single-purpose foraging locations and possible multi-component campsites (i.e., sites containing evidence of several occupational periods). Two prehistoric sites and four isolated finds were recorded at NBAFS during subsurface testing (PAL 1993).

Twenty-eight historic sites occur on NBAFS (22 rural homesteads, 3 industrial complexes, and 3 civic sites [road, school, and trash dump]; Watford 1988; PAL 1993). These sites are distributed widely throughout NBAFS; 12, however, are clustered along the roads at the base of Joe English Hill. Twenty-six of these sites have been recommended as potentially

Table 3. Federally Listed, State-Listed, and Rare Species of Plants and Animals and Rare Natural Communities Found on New Boston Air Force Station, New Hampshire

Common Name	Scientific Name	Federal Status	State Status	State Rank[a]	Number of Observations[b]
Natural Communities[c]					
Black gum-red maple basin swamp	NA[d]	–	–	S1/S2	Common
Coastal/southern dwarf shrub bog and acidic fen	NA	–	–	S1/S2	1
Hardwood-conifer basin swamp and coastal/southern dwarf shrub bog	NA	–	–	SU/S1	1
Coastal/southern acidic fen	NA	–	–	S2	1
Transitional/Appalachian acidic talus woodland	NA	–	–	S3	1
Dry transitional oak-white pine forest	NA	–	–	S3/S4	1
Southern acidic rocky summit community	NA	–	–	S3/S4	1
Oak-pine rocky summit woodland community	NA	–	–	SU	1
Plants					
Fern-leaved false foxglove	*Aureolaria pedicularia* var *intercedens*	–	LE[e]	S1	>100
Moths					
No common name	*Aphareta purpurea*	–	–	S2	1
Orange-spotted idia	*Idia diminuendis*	–	–	S2/S4	1
Butterflies and Skippers					
Appalachian brown	*Satyrodes appalachia*	–	–	S1?	7
Delaware skipper	*Anatrytone logan*	–	–	S3/S4	1
Mulberry wing	*Poanes massasoit*	–	–	S1/S3	4
Little glassywing	*Pompeius verna*	–	–	SU	1
Amphibians					
Northern leopard frog	*Rana pipiens*	–	–	S3	Common
Reptiles					
Blanding's turtle	*Emydoidea blandingii*	–	–	S3	16
Eastern hognose snake	*Heterodon platirhinos*	–	LT[f]	S3	10
Birds[g]					
Pied-billed grebe	*Podilymbus podiceps*	–	LE	S1B,SZN	10
American bittern	*Botaurus lentiginosus*	–	–	S3B	2
Osprey	*Pandion haliaetus*	–	LT	S2B,SZN	57
Bald eagle	*Haliaeetus leucocephalus*	LT	LE	S1	5

Table 3 (Cont.)

Common Name	Scientific Name	Federal Status	State Status	State Rank[a]	Number of Observations[b]
Birds (Cont.)					
Northern harrier	*Circus cyaneus*	–	LE	S2B,SZN	8
Cooper's hawk	*Accipiter cooperii*	–	LT	S2B,SZN	9
Mammals					
Eastern pipistrelle	*Pipistrellus subflavus*	–	–	S1N,SUB	4
Small-footed bat	*Myotis leibii*	–	LE	S1	2

Source: *Biodiversity Survey of New Boston Air Station*, LaGory et al. (1997, 2002) and Najjar (2000, 2003).

[a] State Rank Codes: S1 = Critically imperiled because of extreme rarity (5 or fewer occurrences, or very few remaining individuals), or because of some factor of its biology making it especially vulnerable to extinction. S2 = Imperiled because of rarity (6 to 20 occurrences), or because of other factors demonstrably making it very vulnerable to extinction throughout its range. S3 = Either very rare and local throughout its range, or found locally (even abundantly at some of its locations) in a restricted range, or vulnerable to extinction throughout its range because of other factors (in the range of 21 to 100 occurrences). S4 = Apparently secure, though it may be quite rare in parts of its range, especially at the periphery. SU = Possibly in peril, but status uncertain; more information needed.

State Rank Modifiers: B = Breeding status for a migratory species. N = Non-breeding status for a migratory species. Z = Ranking not applicable. Example: S1B,SZN – breeding occurrences for the species are ranked S1 (critically imperiled) in the State, nonbreeding occurrences are not ranked in the State.

State ranks do not confer any official or legal status to a species. These ranks are assigned by the New Hampshire Natural Heritage Inventory to provide information on the population status of species within the State.

[b] Number of observations is the number of individuals encountered in surveys. For plants, this is the relative abundance or estimated size of populations observed. For moths, butterflies, and skippers, this is the number of individuals collected or seen. For amphibians, it is the relative abundance at NBAFS. For birds, this is the number of times individuals of the species were observed, and it is possible that the same individual was seen and counted more than once. For bats, this is the number of individuals captured or recorded with Anabat® detectors.

[c] Some natural communities on NBAFS exhibited characteristics of more than one community type. Where this occurred, the name and rank of both communities are listed separately. Natural communities are not assigned a federal or State status.

[d] NA = not applicable.

[e] Listed as endangered – those native species whose prospects for survival in New Hampshire are in immediate danger because of a loss or change in habitat, over-exploitation, predation, competition, disease, disturbance, or contamination. Assistance is needed to ensure continued existence as a viable component of the State's wildlife community.

[f] Listed as threatened – any species that is likely to become an endangered species within the foreseeable future throughout all or a significant part of its range.

[g] Some bird species found on NBAFS that are considered rare in New Hampshire only as breeders are not included in this table because they have not been observed during the breeding season.

eligible for listing on the National Register of Historic Places (NRHP; PAL 1993) because of their potential to contain information important to the history of the area (National Register Eligibility Criterion D, as identified in 36 CFR 60.4). Further evaluation is required before a formal eligibility determination can be made (ANL 1999).

Evidence of looting, erosion, and other damaging activities has been reported at several of the sites potentially eligible for listing on the NRHP (PAL 1993; Loflin and Grumet 1996). The specific causes of the damages and time that they occurred are not known.

NBAFS is one of the original three satellite-tracking and communications stations established for the military space program. All activities associated with the satellite-tracking mission of the station take place within the Operations Area. This area contains 17 structures. The State Historic Preservation Officer (SHPO) within the New Hampshire Division of Historical Resources has indicated that seven buildings within the Operations Area may contribute to an historic district that is potentially eligible for listing on the NRHP (Muller 1998). The proposed historic district includes Buildings 105 and 106 (NHS-A satellite-tracking antenna), Building 100 (Satellite Control and Headquarters), Building 102 (base engineering facility), Building 104 (base engineering facility), and Building 109 (Satellite Control Station), all constructed in 1960, and Building 142 (SATCOM support building) and Building 143 (SATCOM antenna), both built in 1978. Although all of the buildings included in the historic district are less than 50 years old, they played an important role during the Cold War (PES 1998).[3]

In recognition of the importance of the historic properties found at the station, NBAFS, in consultation with the New Hampshire SHPO, has developed a Programmatic Agreement (PA) that establishes the guidelines and procedures for NRHP eligible properties at the station (NBAFS 2002). The PA stipulates that the facilities at the station are scientific and technical in nature and will require routine upgrades or replacement of equipment. These activities are deemed to have no effect on the historic significance of the properties because they are eligible under Criterion D for their potential to provide additional information on the Cold War rather than under Criterion C for their architectural merit. The PA also states that prior to demolition of any eligible property within the Operations Area historic district, the property would receive Historic American Building Survey/Historic American Engineering Record (HABS/HAER) documentation.

3.7 LAND USE, RECREATION, AND VISUAL RESOURCES

Facilities that support the satellite-tracking operations at NBAFS occupy about 44 ac (17.7 ha) of the 2,826-ac (1,144-ha) site (LaGory et al. 1997). Facilities located within the Operations Area (Figure 1) include three enclosed satellite dish antennae, satellite-control buildings, and satellite-tracking and communications buildings. Support facilities include

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3 The National Historic Preservation Act of 1966, as amended, typically applies to properties older than 50 years; however, if a property is determined to be of exceptional importance under the eligibility criteria for listing on the NRHP (36 CFR 60.4), it is also protected under this act.

maintenance and administration buildings, a fire station, and storage facilities. Dormitories for enlisted personnel and several home structures are also present. Over the years, NBAFS has been restoring the remainder of the land to a natural state, while maintaining the recreational and military training uses of the station. The unimproved portions of NBAFS are not used to actively support mission operations (ANL 1999).

Recreational use of NBAFS is restricted primarily to active Department of Defense (DoD) staff and their families and eligible DoD retirees. Numerous active and passive outdoor recreational opportunities have been made available at NBAFS, including nature watching, fishing, swimming, camping, hiking, rock climbing, hunting, archery, boating, cross-country skiing, ice fishing, ice skating, sledding, and snowmobiling (ANL 1990; Najjar 1998). Recreational activities have been restricted over the past several years for security reasons and because of the presence of UXO in some areas. The nearest recreational facilities to the project area is adjacent to Deer Pond where picnicking, boating, and baseball facilities are available. The Community Center is also located near Deer Pond. Military training could be conducted at any location within NBAFS (ANL 1999).

The land immediately surrounding NBAFS is heavily wooded, representing some of the least developed and most rural portions of the towns of New Boston, Amherst, and Mont Vernon. The area is primarily designated for low-density residential use (USAF 2001). Single-family homes on parcels typically over one acre, undeveloped lands, and several active farms (particularly along Chestnut Hill Road and Joe English Road) occur in the immediate vicinity of NBAFS. A computer software company is located opposite the main entrance to the station (ANL 1999).

Radomes associated with NBAFS antennas constitute the primary obstructions to views on the station. However, most of NBAFS provides a natural setting (e.g., forests, hills, wetlands, and ponds), and visual resources are considered excellent, with scenic vistas evident from the station's higher elevations.

3.8 SOCIOECONOMICS

NBAFS employs about 150 people (consisting of military, DoD civilian, or civilian contract employees; USAF 2001). Although rural in character, the three communities of New Boston, Amherst, and Mont Vernon that surround NBAFS have experienced population growth and are located within one of the most rapidly expanding residential areas of New England. Accordingly, residential development is expected to continue in the area surrounding NBAFS. The communities that surround NBAFS represent three of the most affluent communities of the State (all three are ranked in the top 25 of 234 communities in terms of median household income; USAF 2001).

4 ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION AND NO-ACTION ALTERNATIVE

Impacts of the proposed action (construction and operation of a septic system) and the no-action alternative are presented in this section. Consideration is given to impacts to air quality and noise; topography, geology, and soils; water resources; ecology; cultural resources; land use, recreation, and visual resources; socioeconomics; and health and safety. Direct effects (those effects caused by the action and occurring at the same time and place) and indirect effects (those effects caused by the action that occur later in time or at a distance) are considered in this section. Adverse impacts that cannot be avoided if the project is implemented, irreversible and irretrievable commitment of resources, and the relationship between short-term use and long-term productivity are discussed in Sections 4.3, 4.4, and 4.5, respectively. Cumulative impacts are presented in Section 4.6.

4.1 ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

As described in Section 2, the proposed action consists of construction and operation of a septic system at NBAFS. This septic system would replace the existing wastewater treatment plant. On the basis of the assessments provided in the following sections, the proposed action would not have any significant adverse impacts on the environment.

4.1.1 Air Quality and Noise

Localized, short-term air quality impacts that could occur during project construction include the generation of fugitive dust and engine exhaust emissions. The potential impacts of these emissions on ambient air quality in the vicinity of NBAFS would be minor and limited to the duration of construction activities (6 to 8 weeks). No violations of applicable federal and State ambient air quality standards are expected.

Noise impacts would occur from the use of machinery and vehicles during excavation and construction. Construction would occur mostly during weekday daytime hours, thus much of the construction noise would be masked by background noises. Noise impacts associated with construction activities would be minor and of short duration.

NBAFS construction specifications would minimize air and noise impacts. Dust barriers would be used to prevent the spread of fugitive dust beyond the work area. Water also could be used for dust suppression. No burning of materials and debris would be permitted. All vehicles would be required to function properly (e.g., exhaust systems with no leaks). Low noise-emission equipment, as certified by the EPA, would be used to the maximum extent practicable. Section 176 of the Clean Air Act requires federal agencies to assure that their actions conform to applicable implementation plans for achieving and maintaining the NAAQS for criteria pollutants. General air conformity analysis is typically required for projects at NBAFS due to regional ozone noncompliance. The requirements of General Conformity do not apply to the

proposed action for two reasons: (1) the maximum net increase in annual total direct and indirect emissions are estimated to be less than 8 tons/year of nitrous oxides (NOx) and 1 ton/year of volatile organic compounds (VOCs) and are below the *de minimis* level of 100 tons/yr of NOx and 50 tons/year of VOCs that apply in the Manchester marginal non-attainment area for ozone and (2) the action is not regionally significant (i.e., emissions would be less than 10% of the NOx and VOC emissions in the region).

4.1.2 Topography, Geology, and Soils

The proposed action would have relatively minor effects on the topography of the project area. Such impacts would result from excavation of trenches for sewer pipes and septic tanks, removal of two rubble piles totaling about 1,900 yd^3 (1,453 m^3), and construction of the two mounded aboveground EDAs. Following placement of pipes and septic tanks, the original grade in those areas would be restored. Aboveground EDAs would represent permanent changes to the topography of the project area and would occupy 16,333 ft^2 (0.4 ac [0.2 ha]).

Impacts to soils (e.g., erosion and soil compaction) would be limited to excavation and construction areas. Erosion would be controlled through the use of silt fencing surrounding excavation and construction areas. Excavation would be confined to the north side of On-Orbit Drive between the wastewater treatment plant (Building 130) and the EDAs. Following completion of construction, excavated areas would be graded to return to original contours, EDAs would be contoured to provide stable slopes, topsoil would be placed over all disturbed areas, and all disturbed areas would be seeded with lawn grass to stabilize soils.

Construction staging areas would be located on paved or graveled surfaces. By refueling construction equipment in these areas, the potential for impacts from fuel-handling spills would be minimized. Vehicles and other equipment would be required to be clean and properly operating (e.g., no fuel or hydraulic leaks and motors reasonably clean of excess grease) to prevent leaks. Fuel-oil and petroleum storage tanks would be surrounded by appropriately sized containment systems to contain any spills or leaks. In the event of a spill or leak, response would be in accordance with established USAF and State regulations.

4.1.3 Water Resources

Minor increases in turbidity and sedimentation of surface waters in the project vicinity could occur during excavation and construction. These increases would result from erosion of exposed soil, particularly during inclement weather, but erosion-control practices (e.g., silt fencing, regrading, and revegetation) would prevent significant impacts. The contractor would be required to prepare a Pollution Prevention Plan and a completed Notice of Intent form in accordance with the requirements of the State's general permit for storm water discharges from construction sites.

Construction is not expected to affect groundwater resources (e.g., change the depth to groundwater, alter groundwater flow direction, affect groundwater recharge, or impact

groundwater quality). The potential for spills from fuel handling would be minimized through preventative actions and approved spill response procedures.

Diverting sanitary wastewater from the existing wastewater treatment plant to the proposed septic system would eliminate the effluent discharged to Beaver Pond 1. This would eliminate the potential for the release of contaminants to surface waters. There would be an associated decrease in flow through the Beaver Pond 1 wetland complex, and consequently into Deer Pond, Joe English Pond, and Joe English Brook. This decrease would amount to an average of approximately 1,810 gal/day (6.9 m^3/day). This decrease represents a small change in volume and flow and would result in conditions that are more representative of the undisturbed condition of these ponds, wetlands, and streams. No impacts to water resources are expected from discharge of effluent into the septic system because this system would be required to meet State requirements for such systems, and these requirements are protective of the environment and human health.

4.1.4 Ecological Resources

Direct impacts to ecological resources would be limited to excavation and construction areas. A narrow corridor along On-Orbit Drive would be disturbed during excavation for the new sewer pipe and septic tanks (Figure 2); total disturbance for this corridor would be about 1 ac (0.4 ha). Two acres (0.9 ha) or less of young woodland would be cleared during removal of the rubble pile and construction of the EDAs to the southeast of Building 143. Impacts of construction activities on ecological resources are expected to be relatively minor because of the limited extent of disturbance of natural habitat.

Plants in the immediate project area would be trampled or removed during construction. Soil compaction from heavy equipment could destroy ground vegetation or damage tree roots by reducing soil aeration and altering soil structure. Dust and other particulates would be released during construction, but dust-control measures (Section 4.1.1) would minimize any associated impacts. Construction activities would be over a short period of time (6 to 8 weeks), and impacts would occur in a limited area. Following construction, the project area would be graded and planted with lawn grasses.

Wildlife in the immediate project vicinity would be disturbed during construction by noise and visual disturbances from equipment and construction personnel. These disturbances could cause short distance movements of wildlife, scare birds off their nests, or otherwise disrupt normal wildlife activities. However, because these disturbances would be temporary and occur in a very limited area, their impacts are expected to be negligible. A burrow made by an unidentified animal into the rubble pile will be destroyed when the pile is removed.

Some of the listed and rare wildlife species and neotropical migrant bird species (afforded protection under the Migratory Bird Treaty Act) are distributed widely across the station and could occur in the project area (ANL 1999). The Blanding's turtle, whip-poor-will, and eastern pipistrelle (all considered rare in the State, but not listed by the federal government or the State), and the eastern hognose snake (listed as threatened by the State) are the only rare or

listed species that have been reported from the vicinity of the project area. Individuals of these species in the immediate project area could be disturbed during project construction, but are expected to leave during construction. Listed or rare species that are not known to occur in the project area but could occur based on habitat requirements include the northern leopard frog, American bittern, pied-billed grebe, osprey, and Cooper's hawk. The Cooper's hawk forages and nests in woodland habitats; the other species use wetland habitats. Construction personnel would be notified of the potential occurrence of listed and rare species and would be required to notify NBAFS Natural Resources staff if any individuals of these species were observed in the project area. The potential for impact to these species is expected to be low.

Wetlands that are downstream of the treated wastewater discharge point are wetland 29, 28, 25, 26, 27, 21, 20, 19A, and 19 (Figure 3). These wetlands have a total surface area of 18.9 ac (7.6 ha). Wetland 29, a 0.5 ac (0.2 ha) palustrine forested and emergent wetland that is part of the Beaver Pond 1 complex, is within 50 ft (15 m) of On-Orbit Drive; the proposed sewer line between the treatment plant and the EDAs would be placed between the wetland and the road (Figure 2). Wetland 40, a 0.1 ac (0.04 ha) forested wetland is located approximately 50 ft (15 m) north of the proposed location of EDA2 (Figures 2 and 3). Potential disturbance of these wetlands would be minimized by clearly marking wetland boundaries, avoiding direct impact (e.g., trampling, placing excavated materials or equipment in wetlands), and placing silt fences between the wetland and disturbance areas to prevent runoff and sedimentation of wetlands. Regrading and stabilizing soils with vegetation shortly after construction is complete would eliminate erosion from construction areas.

Wetlands on the other side of On-Orbit Drive are not likely to be affected by the proposed action because the road separates these wetlands from construction areas.

4.1.5 Cultural Resources

No impacts to cultural resources are expected from the installation of the new septic system. However, earthmoving activities and the use of heavy equipment could result in the disturbance of previously undiscovered archaeological resources. The potential to discover previously unknown archaeological resources is considered very low because most of the project area is within improved or semi-improved areas that have previously been subjected to disturbance and fill. Some of the southwestern portion of the study area where EDAs would be placed has not apparently been previously disturbed; however, these areas are located on a 25% slope where the probability of encountering remains is considered small. If archaeological materials are encountered during construction, operations would cease in the immediate area of the discovery until NBAFS gives permission to resume work.

No historic structures would be affected by the proposed project. The only building being altered in the project is the wastewater treatment plant (Building 130) which is not a significant Cold War era historic structure.

4.1.6 Land Use, Recreation, and Visual Resources

The proposed action would not result in any adverse impact to the station's natural resources (Section 4.1.4) and would not conflict with any plans or goals for natural resource management at NBAFS. The proposed action is consistent with other land use within the Operations Area and is considered important for continued operation of the station. The proposed action would be located in the northeastern portion of the station where little recreational use occurs. The EDAs would be located more than 500 ft (152 m) from the Deer Pond recreational facilities.

There would be short-term impacts to visual resources resulting from excavation and construction. The EDAs are the only portion of the proposed facility that would be visible after construction was complete. The completed EDAs would consist of two raised, grassed mounds near the SATCOM facility (Buildings 142 and 143). Although visually they would represent a change from the woodland they would replace, their appearance would be consistent with the Operations Area as a whole. Natural vegetation would screen views of the EDAs from the Deer Pond recreational facilities and the Community Center located to the southeast. The EDAs would be visible from On-Orbit Drive.

4.1.7 Socioeconomics

The proposed action would have a negligible effect on the local economy. Construction activities would be confined to NBAFS. The proposed action would not result in any significant beneficial or adverse socioeconomic impacts to the local population, labor force, or economy. The proposed action is expected to require approximately 15 workers over a period of six to eight weeks. Equipment such as hydraulic excavators, bulldozers, dump trucks, and logging equipment would be used during construction.

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. No environmental justice impacts would be expected to either minority or low-income populations.

4.1.8 Health and Safety

No health and safety issues are anticipated with the proposed action. Because the proposed action would require excavation and ground disturbance, an unexploded ordinance survey would be required before any activities begin.

The potential for serious injuries or fatalities to workers during excavation and construction activities are considered small. The contractor would be responsible for complying with all Occupational Safety and Health Administration requirements and for instructing employees on accident prevention and safety.

4.2 ENVIRONMENTAL IMPACTS OF THE NO-ACTION ALTERNATIVE

Under the no-action alternative, the existing wastewater treatment plant would not be replaced and would continue to operate. Taking no action would be equivalent to maintaining the existing environment (as described in Section 3). The impacts associated with constructing and operating a septic system at NBAFS, as described in Sections 4.1 and 4.2, would not occur. Treated wastewater would continue to be released to Beaver Pond 1 and future NPDES permit exceedances could continue.

4.3 ADVERSE EFFECTS THAT CANNOT BE AVOIDED IF THE PROJECT IS IMPLEMENTED

Construction and operation of a septic system at NBAFS could result in some minor temporary adverse environmental impacts. These would be eliminated, avoided, or further reduced, however, through implementation of a variety of standard operating procedures and good engineering practices. Those adverse impacts that cannot be eliminated or avoided are identified below.

Although no significant air quality impacts are anticipated if the project is implemented, fugitive dust and engine exhaust emissions would be produced during excavation and construction activities. Noise would also be produced by these activities. Air quality impacts and noise impacts associated with these activities would be short lived and limited to the immediate project surroundings. Operational noise impacts would be minor and have no effect outside of the station boundary.

The proposed action would result in some ecological impacts that cannot be avoided. Construction of the EDAs in the proposed location would result in the clearing of up to 2 ac (0.9 ha) of young woodland. Some adverse impacts to wildlife that result from disturbance during construction cannot be avoided but would be limited to the 6 to 8 week period of construction activities. Diverting wastewater from the existing wastewater treatment plant to the new septic system would eliminate discharges of treated wastewater (average of 1,810 gal/day [6.9 m^3/day]) to Beaver Pond 1 and would result in subsequent minor decreases in flow into Deer Pond, Joe English Pond, and Joe English Brook. These decreases would return wetlands, ponds, and streams that have received these effluents to more natural conditions.

Despite the implementation of control measures, some unavoidable increases in soil erosion would result from excavation and construction activities, especially during heavy rains. Turbidity and suspended solids in nearby surface water bodies could temporarily increase.

4.4 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Resources that would be committed irreversibly or irretrievably during implementation of the proposed action would include materials that could not be recovered or recycled and materials or resources that would be consumed or reduced to irrecoverable forms. Use of fuel, oil, concrete, steel, chemicals, and other materials during installation would constitute an irreversible and irretrievable commitment of those resources. The land occupied by the new septic system would be unavailable for use (and thus committed) throughout the life of the project. Approximately 2 ac (0.9 ha) of young woodland would be replaced by the proposed EDAs.

4.5 RELATIONSHIP BETWEEN SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

Most adverse impacts to the environment associated with the proposed action would be temporary (e.g., a slight increase in air emissions and erosion during construction). The new septic system could be removed at the end of its useful life, and the affected area could be reclaimed to a natural state.

4.6 CUMULATIVE IMPACTS

Cumulative impacts are those impacts to the environment that result from the incremental effect of the proposed project when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. No significant cumulative effects are anticipated for the proposed action.

The past and current missions at NBAFS, military training, recreation, and natural resource management activities have resulted in localized minor adverse cumulative impacts and moderate to high widespread beneficial cumulative impacts to the ecological resources of the site. The Operations Area and disturbed lands at NBAFS occupy less than 100 ac (40 ha) of the site. While military training, recreation, and other activities cause short-term, localized adverse impacts, natural resource management has created highly diverse conditions over most of NBAFS. Ongoing natural resource management activities are expected to result in continued improvement in ecological conditions on NBAFS. While there are no major natural areas or parks located within about 10 mi (16 km) of NBAFS, there are small conservation areas maintained by the local towns, including the 500-ac (200-ha) Joe English Reservation that abuts the southwest portion of the site (Najjar 1998). Therefore, improvements in the natural resources of NBAFS would be an important contributor to the area's biodiversity.

The potential impact on ambient air quality from excavation and construction emissions (e.g., fugitive dust and engine exhaust emissions) would be a negligible short-term increase in emissions from NBAFS and within Hillsborough County. However, emissions associated with the proposed action would be mostly confined to the immediate project area since most

emissions would be released near ground level. Emission rates would be low; thus, potential for cumulative impacts to ambient air quality would be minor.

Only about 150 people are employed at NBAFS, and they make only a minor contribution to the socioeconomic conditions of the region. The residential communities near NBAFS are relatively affluent, and are expected to continue to be so into the future. The proposed action would not contribute to cumulative socioeconomic impacts.

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Daniel J. O'Rourke	M.S. Industrial Archaeology; 13 years of experience in archaeological research; 4 years of experience in environmental assessment	Cultural resources; socioeconomics; topography, soils, and geology

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APPENDIX A: CORRESPONDENCE

DEPARTMENT OF THE AIR FORCE
50TH SPACE WING (AFSPC)

29 Mar 04

MEMORANDUM FOR U.S. FISH AND WILDLIFE SERVICE
ATTENTION: MR. MICHAEL BARTLETT
FIELD SUPERVISOR
NEW ENGLAND FIELD OFFICE
70 COMMERCIAL STREET
CONCORD NH 03301-5087

FROM: 23 SOPS/CC
317 Chestnut Hill Road
New Boston AFS NH 03070-5125

SUBJECT: Preparation of an Environmental Assessment (EA) for the Construction and Operation of a Septic System at New Boston Air Force Station (NBAFS), New Hampshire

1. I am requesting information from your office regarding Federally-listed, proposed, and candidate threatened and endangered plant and animal species that may occur on or in the vicinity of NBAFS, New Hampshire.

2. The United States Air Force (USAF) plans to construct and operate a septic tank system for the treatment of sanitary waste at the station. This system would replace the existing wastewater treatment plant and is being proposed to reduce effluent discharge to local streams. The septic system would consist of two, 5,000 gallon tanks. Wastewater would be discharged to two effluent disposal areas that would occupy a total of about 0.5 acre of land. The septic system would be located in the developed portion of the station and minimal disturbance of natural habitats is anticipated.

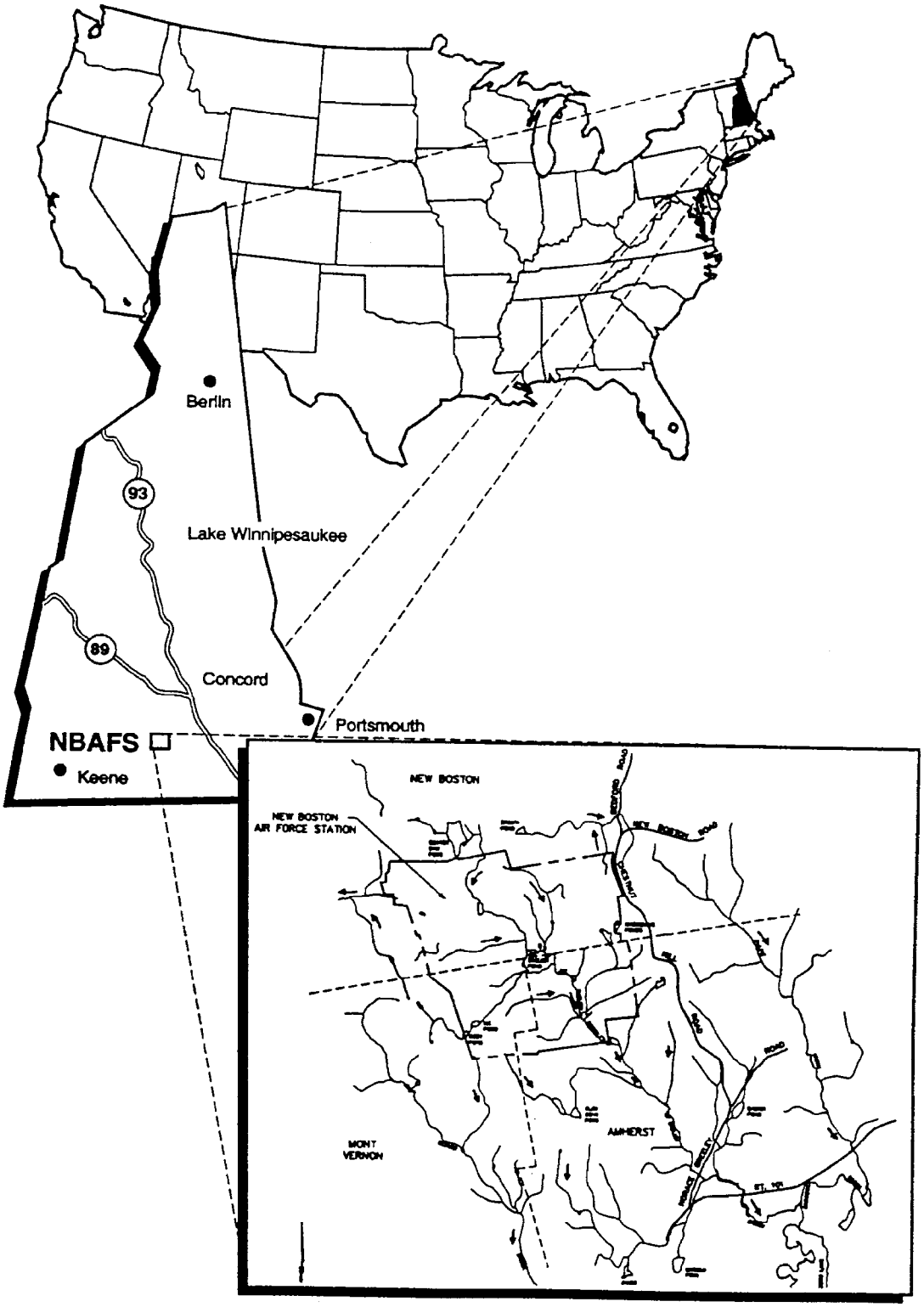
3. NBAFS is a satellite tracking station that occupies approximately 2,826 acres in Hillsborough County of south-central New Hampshire (see Atch 1). The station is predominantly undeveloped forest with a mix of deciduous and coniferous trees that varies in species dominance and seral stage across the site. Two surveys for threatened and endangered species have been conducted at NBAFS: A two-year biodiversity survey conducted from 1994 to 1996 (Argonne National Laboratory 1997) and a bat survey conducted in 2002 (Argonne National Laboratory 2002). Only one Federally-listed species, the bald eagle, has been found on NBAFS; this species has been observed in flight over the site during fall migration and an individual was observed during the winter of 1999, feeding on a deer carcass at Joe English Pond in the central portion of the station. No species that are proposed or candidates for Federal listing have been found during site surveys (see Atch 1).

4. The USAF has determined that the project requires preparation of an EA. Based on the information presented above, the USAF does not expect the proposed action to have any impact on Federally-listed, proposed, or candidate species or their habitats. I would appreciate, however, if you would forward any information or concerns you may have regarding impacts on any such species or other ecological resources. The USAF will use the information you provide in preparing the EA.

5. If you have any questions on this matter, contact my Natural Resources Planner, Mr. Stephen Najjar, at (603) 471-2426.

CHARLES H. CYNAMON, Lt Col, USAF
Commander

Attachments:
1. Location of NBAFS
2. Listed and Rare Species and Communities on NBAFS



Location of New Boston Air Force Station, New Hampshire

Federally Listed, State-Listed, and Rare Species of Plants and Animals and Rare Natural Communities Found on New Boston Air Force Station, New Hampshire[1]

Common Name	Scientific Name	Federal Status	State Status	State Rank[1]	Number of Observations[2]
Natural Communities[3]					
Black Gum - Red Maple Basin Swamp	NA[4]	--	--	S1S2	1
Coastal/Southern Dwarf Shrub Bog and Acidic Fen	NA	--	--	S1/S2	1
Hardwood-Conifer Basin Swamp and Coastal/Southern Dwarf Shrub Bog	NA	--	--	SU/S1	1
Coastal/ Southern Acidic Fen	NA	--	--	S2	1
Transitional/ Appalachian Acidic Talus Woodland	NA	--	--	S3	1
Dry Transitional Oak-White Pine Forest	NA	--	--	S3S4	1
Southern Acidic Rocky Summit Community	NA	--	--	S3S4	1
Oak-Pine Rocky Summit Woodland Community	NA	--	--	SU	1
Plants					
Fern-leaved false foxglove	*Aureolaria pedicularia* var *intercedens*	--	LE	S1	>100
Moths					
No common name	*Aphareta purpurea*	--	--	S2	1
Orange-spotted idia	*Idia diminuendis*	--	--	S2S4	1
Butterflies and Skippers					
Appalachian brown	*Satyrodes appalachia*	--	--	S1?	7
Delaware skipper	*Anatrytone logan*	--	--	S3S4	1
Mulberry wing	*Poanes massasoit*	--	--	S1S3	4
Little glassywing	*Pompeius verna*	--	--	SU	1
Amphibians					
Northern leopard frog	*Rana pipiens*	--	--	S3	Common
Reptiles					
Blanding's turtle	*Emydoidea blandingii*	--	--	S3	4
Eastern hognose snake	*Heterodon platirhinos*	--	LT	S3	1
Birds[5]					
Pied-billed grebe	*Podilymbus podiceps*	--	LE	S1B,SZN	10
American bittern	*Botaurus lentiginosus*	--	--	S3B	2
Osprey	*Pandion haliaetus*	--	LT	S2B,SZN	57
Bald eagle	*Haliaeetus leucocephalus*	LT	LE	S1	5

Listed and Rare Communities and Species of NBAFS (continued)

Common Name	Scientific Name	Federal Status	State Status	State Rank[1]	Number of Observations[2]
Birds (continued)					
Northern harrier	*Circus cyaneus*	--	LE	S2B,SZN	8
Cooper's hawk	*Accipiter cooperii*	--	LT	S2B,SZN	9
Mammals					
Eastern pipistrelle	*Pipistrellus subflavus*	--	--	S1N,SUB	4
Small-footed bat	*Myotis leibii*	--	LE	S1	2

Sources: *Biodiversity Survey of New Boston Air Station*, LaGory et al. (1997), *A Survey of the Bats of New Boston Air Force Station*, New Hampshire, LaGory et al. (2002).

[1] State ranks do not confer any official or legal status to a species. These ranks are assigned by the New Hampshire Natural Heritage Inventory to provide information on the population status of species within the State.

[2] Number of observations is the number of individuals encountered in surveys. For plants, this is the relative abundance or estimated size of populations observed. For moths, butterflies, and skippers, this is the number of individuals collected or seen. For amphibians it is the relative abundance at NBAFS. For birds, this is the number of times individuals of the species was observed and it is possible that the same individual was seen and counted more than once. For bats, this is the number of individuals captured or recorded with Anabat detectors.

[3] Some natural communities on NBAFS exhibited characteristics of more than one community type. Where this occurred, the name and rank of both communities are listed separately. Natural communities are not assigned a Federal or State status.

[4] NA = not applicable.

[5] Some bird species found on NBAFS that are considered rare in New Hampshire only as breeders are not included in this table because they were not observed during the breeding season.

DEPARTMENT OF THE AIR FORCE
50TH SPACE WING (AFSPC)

29 Mar 04

MEMORANDUM FOR NEW HAMPSHIRE DEPARTMENT OF FISH AND GAME
ATTENTION: MR. LEE E. PERRY
EXECUTIVE DIRECTOR
2 HAZEN DRIVE
CONCORD NH 03301

FROM: 23 SOPS/CC
317 Chestnut Hill Road
New Boston AFS NH 03070-5125

SUBJECT: Preparation of an Environmental Assessment (EA) for the Construction and Operation of a Septic System at New Boston Air Force Station (NBAFS), New Hampshire

1. I am requesting information from your office regarding State-listed threatened and endangered plant and animal species that may occur on or in the vicinity of NBAFS, New Hampshire.

2. The United States Air Force (USAF) plans to construct and operate a septic tank system for the treatment of sanitary waste at the station. This system would replace the existing wastewater treatment plant and is being proposed to reduce effluent discharge to local streams. The septic system would consist of two, 5,000 gallon tanks. Wastewater would be discharged to two effluent disposal areas that would occupy a total of about 0.5 acre of land. The septic system would be located in the developed portion of the station and minimal disturbance of natural habitats is anticipated.

3. NBAFS is a satellite tracking station that occupies approximately 2,826 acres in Hillsborough County of south-central New Hampshire (see Atch 1). The station is predominantly undeveloped forest with a mix of deciduous and coniferous trees that varies in species dominance and seral stage across the site. Two surveys for threatened, endangered, and rare species have been conducted at NBAFS: a two-year biodiversity survey conducted from 1994 to 1996 (Argonne National Laboratory 1997) and a bat survey conducted in 2002 (Argonne National Laboratory 2002). State-listed species found on NBAFS included: fern-leaved false foxglove (*Aureolaria pedicularia* var *intercedens*), eastern hognose snake (*Heterodon platirhinos*), pied-billed grebe (*Podilymbus podiceps*), osprey (*Pandion haliaetus*), bald eagle (*Haliaeetus leucocephalus*), northern harrier (*Circus cyaneus*), Cooper's hawk (*Accipiter cooperi*), and small-footed bat (*Myotis leibii*). The bald eagle and northern harrier were not observed to use station habitat, but were observed in flight over the site during fall migration. A bald eagle was observed during the winter of 1999, feeding on a deer carcass at Joe English Pond in the central portion of the station.

Two adult female small-footed bats (one pregnant, the other nonreproductive) were captured near Joe English Hill. The rock slabs and crevices that are abundant on this landscape feature may provide roost areas for this species. See Atch 2 for a complete list of protected and rare species and natural communities found on NBAFS.

4. The USAF has determined that the project requires preparation of an EA. Based on the information presented above, the USAF does not expect the proposed action to have any significant impact on State-listed species or their habitats. I would appreciate, however, if you would forward any information or concerns you may have regarding impacts on any such species or other ecological resources. The USAF will use the information you provide in preparing the EA.

5. If you have any questions on this matter, contact my Natural Resources Planner, Mr. Stephen Najjar, at (603) 471-2426.

CHARLES H. CYNAMON, Lt Col, USAF
Commander

Attachments:
1. Location of NBAFS
2. Listed and Rare Species and Communities on NBAFS

DEPARTMENT OF THE AIR FORCE
50TH SPACE WING (AFSPC)

29 Mar 04

MEMORANDUM FOR DEPT OF RESOURCES AND ECONOMIC DEVELOPMENT
ATTENTION: MS. SARA J. CAIRNS
NEW HAMPSHIRE NATURAL HERITAGE INVENTORY
PO BOX 1856
CONCORD NH 03302

FROM: 23 SOPS/CC
317 Chestnut Hill Road
New Boston AFS NH 03070-5125

SUBJECT: Preparation of an Environmental Assessment (EA) for the Construction and Operation of a Septic System at New Boston Air Force Station (NBAFS), New Hampshire

1. I am requesting information from your office regarding Federally-listed, State-listed, or rare plant and animal species and rare natural communities that may occur on or in the vicinity of NBAFS, New Hampshire.

2. The United States Air Force (USAF) plans to construct and operate a septic tank system for the treatment of sanitary waste at the station. This system would replace the existing wastewater treatment plant and is being proposed to reduce effluent discharge to local streams. The septic system would consist of two, 5,000 gallon tanks. Wastewater would be discharged to two effluent disposal areas that would occupy a total of about 0.5 acre of land. The septic system would be located in the developed portion of the station and minimal disturbance of natural habitats is anticipated.

3. NBAFS is a satellite tracking station that occupies approximately 2,826 acres in Hillsborough County of south-central New Hampshire (see Atch 1). The station is predominantly undeveloped forest with a mix of deciduous and coniferous trees that varies in species dominance and seral stage across the site. Two surveys for threatened, endangered, and rare species have been conducted at NBAFS: A two-year biodiversity survey conducted from 1994 to 1996 (Argonne National Laboratory 1997) and a bat survey conducted in 2002 (Argonne National Laboratory 2002). Federally-listed, State-listed, and rare (rank of S3 or higher) species and natural plant communities found on NBAFS during these surveys are presented in Table 1 (see Atch 2).

4. The USAF has determined that the project requires preparation of an EA. Based on the information presented above, the USAF does not expect the proposed action to have any significant impact on Federally-listed, State-listed, or rare species or their habitats. I would appreciate, however, if you would forward any information or concerns you may have regarding

impacts on any such species or other ecological resources. The USAF will use the information you provide in preparing the EA.

5. If you have any questions on this matter, contact my Natural Resources Planner, Mr. Stephen Najjar, at (603) 471-2426.

CHARLES H. CYNAMON, Lt Col, USAF
Commander

Attachments:
1. Location of NBAFS
2. Listed and Rare Species and Communities on NBAFS

DEPARTMENT OF THE AIR FORCE
50TH SPACE WING (AFSPC)

29 Mar 04

MEMORANDUM FOR NH DIVISION OF HISTORICAL RESOURCES
ATTN: MR. JAMES MCCONAHA
STATE HISTORIC PRESERVATION OFFICER
STATE OF NH DEPARTMENT OF CULTURAL AFFAIRS
19 PILLSBURY STREET BOX 2043
CONCORD NH 03302-2043

FROM: 23 SOPS/CC
317 Chestnut Hill Road
New Boston AFS NH 03070-5125

SUBJECT: Preparation of an Environmental Assessment (EA) for the Construction and Operation of a Septic System at New Boston Air Force Station (NBAFS), New Hampshire

1. Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, we are requesting comments from your office regarding the United States Air Force (USAF) proposal to construct and operate a septic system at NBAFS, in Hillsborough County, New Hampshire.

2. NBAFS is a satellite tracking station that occupies approximately 2,826 acres in south-central New Hampshire (see Atch 1). The station served as a bombing and gunnery range during World War II and as a satellite tracking facility for the USAF since the early 1960's. Currently, most of the station is undeveloped with the majority of development being concentrated in the 100-acre operations area. A complete archaeological survey of the base was conducted in 1993 and a survey of all Cold War era buildings was completed in 1998 (Public Archaeology Inc., 1993; Parsons Engineering Science, Inc. 1998).

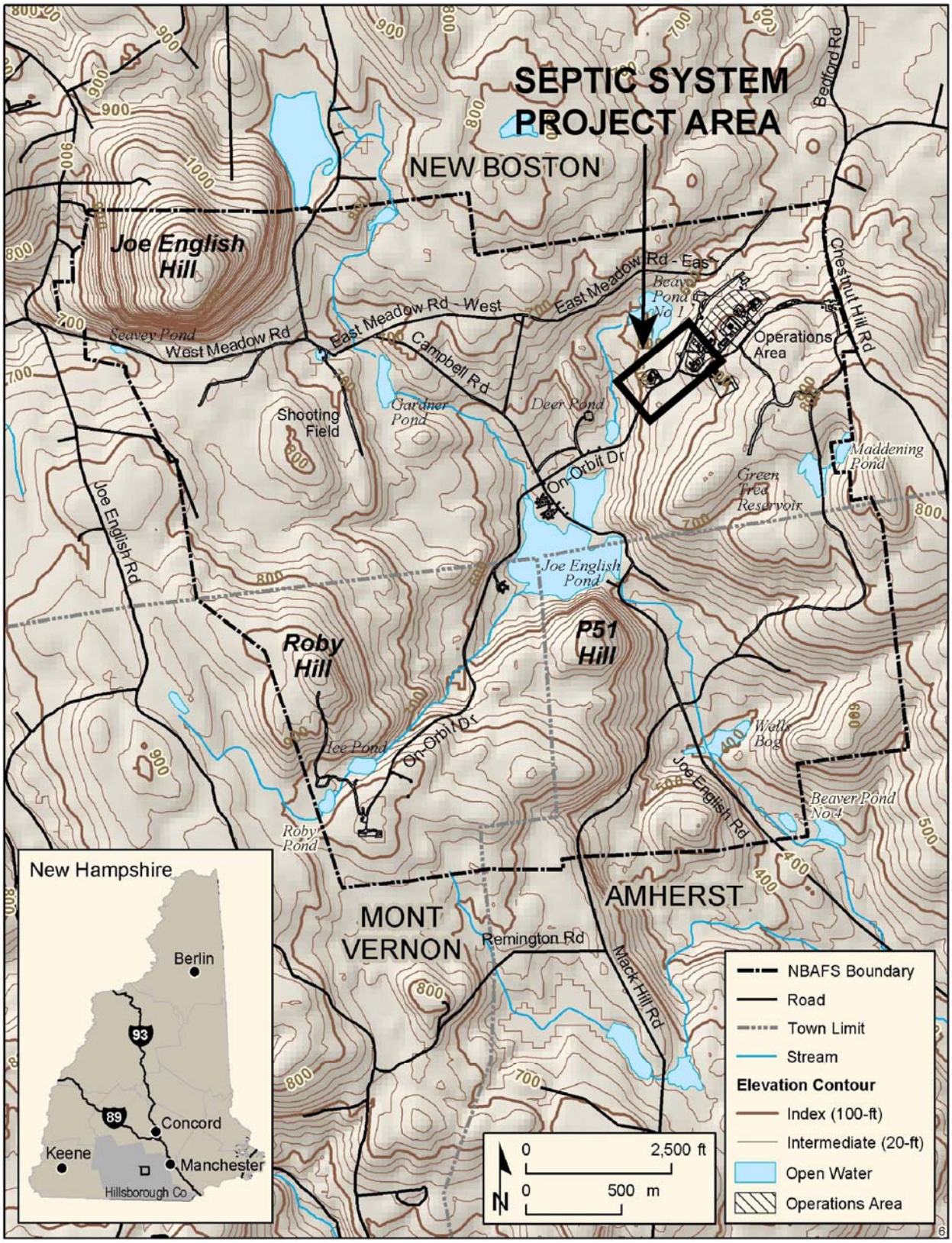
3. The USAF plans to construct and operate a septic tank system for the treatment of sanitary waste in the operations area. This system would replace the existing wastewater treatment plant and is being proposed to reduce effluent discharge to local streams. The septic system would consist of two, 5,000 gallon tanks located within the operations area. Wastewater would be discharged to two effluent disposal areas that would occupy a total of about 0.5 acre of land southwest of the operations area. The septic system would be located in the developed and previously disturbed portion of the station. No archaeological sites have been identified in or near the project area. Also, the project does not require the modification of any historically significant structures. In the event of an unexpected discovery, work would be suspended and the Natural Resources Planner would be contacted.

4. On the basis of the enclosed information, we request your concurrence that construction and operation of a new septic system at NBAFS will result in a finding of "no historic properties adversely affected" (in accordance with 800.5 (d)(1)).

5. If you have any questions, contact my Natural Resources Planner, Mr. Stephen Najjar at (603) 471-2426.

CHARLES H. CYNAMON, Lt Col, USAF
Commander

Attachment:
Location of NBAFS and Project Area



Location of New Boston Air Force Station, New Hampshire, and the Planned Septic System Project Area.

APPENDIX B: REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS (AF FORM 813)

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control Symbol RCS:

INSTRUCTIONS: *Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).*

SECTION I - PROPONENT INFORMATION

1. TO *(Environmental Planning Function)*	2. FROM *(Proponent organization and functional address symbol)*	2a. TELEPHONE NO.
23 SOPS/MAFCVN	23 SOPS/CEC	471-2434

3. TITLE OF PROPOSED ACTION
RNGF949698, Upgrade Water Treatment Plant

4. PURPOSE AND NEED FOR ACTION *(Identify decision to be made and need date)*
The National Point Discharge Elimination System (NPDES) permit for the wastewater treatment plant is up for renewal in April 2005. The EPA indicates the new permit will have more stringent phosphate and metal requirements. The existing waste water

5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES *(DOPAA) (Provide sufficient details for evaluation of the total action.)*
In accordance with the New Boston AFS Water Treatment Evaluation study in June 2000, the station proposes to replace the existing wastewater treatment plant with a septic system (Ecology and Environment Wastewater Treatment Evaluation June 2000).

6. PROPONENT APPROVAL *(Name and Grade)*	6a. SIGNATURE	6b. DATE
RAYMOND TRAMPOSCH, CAPT		20030321

SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY. *(Check appropriate box and describe potential environmental effects including cumulative effects.) (+ = positive effect; 0 = no effect; - = adverse effect; U = unknown effect)*	+	0	-	U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE *(Noise, accident potential, encroachment, etc.)*				
8. AIR QUALITY *(Emissions, attainment status, state implementation plan, etc.)*				X
9. WATER RESOURCES *(Quality, quantity, source, etc.)*	Sw			
10. SAFETY AND OCCUPATIONAL HEALTH *(Asbestos/radiation/chemical exposure, explosives safety quantity-distance, bird/wildlife aircraft hazard, etc.)*				
11. HAZARDOUS MATERIALS/WASTE *(Use/storage/generation, solid waste, etc.)*		Sw		
12. BIOLOGICAL RESOURCES *(Wetlands/floodplains, threatened or endangered species, etc.)*		X		
13. CULTURAL RESOURCES *(Native American burial sites, archaeological, historical, etc.)*		X		
14. GEOLOGY AND SOILS *(Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)*		X		
15. SOCIOECONOMIC *(Employment/population projections, school and local fiscal impacts, etc.)*		X		
16. OTHER *(Potential impacts not addressed above.)*				

SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION

17. [ ] PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) # _____ ; OR
[X] PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.

18. REMARKS

19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION *(Name and Grade)*	19a. SIGNATURE	19b. DATE
Stephen Najja GS-11		27 MAR 03

AF FORM 813, 19990901 ***(EF-V1)*** THIS FORM CONSOLIDATES AF FORMS 813 AND 814. PREVIOUS EDITIONS OF BOTH FORMS ARE OBSOLETE. PAGE 1 OF PAGE(S)